

ABSTRACT OF THE DISCLOSURE

The present invention provides an improved hollow cathode method for sputter coating a substrate. The method of the invention comprises providing a channel for gas to flow through, the channel defined by a channel defining surface wherein one or more portions of the channel-defining surface include at least one target material. Gas is flowed through the channel wherein at least a portion of the gas is a non-laminarly flowing gas. While the gas is flowing through the channel a plasma is generated causing target material to be sputtered off the channel-defining surface to form a gaseous mixture containing target atoms that is transported to the substrate. In an important application of the present invention, a method for forming oxide films and in particular zinc oxide films is provided.